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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Elvir Causevic

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EXAMINER

NATNITHITHADHA, NAVIN

ART UNIT

PAPER NUMBER

3735

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,806	<b>Applicant(s)</b> CAUSEVIC ET AL.	
	<b>Examiner</b> NAVIN NATNITHITHADHA	<b>Art Unit</b> 3735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-8 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The status of the claims is as follows:  
  
Claims 1-4, 12, and 13 are currently amended;  
  
Claims 6-8 and 14-20 are previously presented; and  
  
Claims 5 and 9-11 are cancelled.

### ***Response to Arguments***

2. Applicant's arguments, see Remarks, pp. 1-2, filed 14 February 2008, with respect to the rejection of claims 1-11 and 13-20 under 35 U.S.C. 102(b) as being anticipated by Fischell et al, U.S. Patent No. 6,360,122 B1 ("Fischell"), have been fully considered, and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made, as discussed below.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 6-8, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penn et al, U.S. Patent No. 6,731,976 B2 ("Penn"), in view of Zierhofer, U.S. Patent No. 6,600,955 B1 ("Zierhofer").

Claim 1: Penn teaches the following:

an implantable bioelectric signal processing system (see Abstract, and figs. 2, 11-13, and 15) comprising:

an interface ("implanted probe") 12 configured to receive an analog bioelectric signal from at least one electrode ("sensor") 16 implanted in said living organism (see col. 5, ll. 3-10);

a analog-to-digital converter ("probe electronics") 18/58 to convert the said analog bioelectric signal (see col. 7, ll. 48-54);

a transceiver ("transmitter") 60 coupled to said analog-to-digital converter 58, said transceiver 60 configured to communicate said data stream to a remote

processing system ("external device") 14 over a wireless communications link (see fig. 15, col. 2, ll. 16-23, and col. 7, l. 48, to col. 8, l. 24);

wherein said data is representative of the received analog bioelectric signal, which is further filtered and processed in an external processor ("external electronics") 24 to extract information about the received signal;

an antenna ("probe coil") 20 coupled to a capacitor circuit ("power capacitor") 76, for receiving and storing power which is transmitted wirelessly from an external source 14, said capacitor circuit 76 and antenna 20 configured to indirectly stimulate the process of signal reception from said at least one electrode in response to the said transmitted power (see col. 9, l. 65, to col. 10, l. 9).

Penn does not teach a "sigma-delta analog-to-digital converter to convert the said analog bioelectric signal into a 1-bit data stream", "said transceiver configured to communicate said 1-bit data stream...", and "wherein said 1-bit data is representative of the received analog bioelectric signal". However, Zierhofer teaches an implantable bioelectric signal processing ("electrically evoked action potential", or "EAP", measurement, see col. 5, ll. 23-54), comprising: a sigma-delta modulator (see col. 17, ll. 11-27). In addition, Najafi teaches the following in regards to wireless communication of sensor data between an "implant device 201" and an external "power source/reader 202" (see fig. 3, and col. 4, ll. 37-49):

The signal conditioning circuit 211 processes an output signal from the sensor 206 and prepares it for transmission to an external receiving and/or analyzing device. For example, many pressure sensors output a capacitance signal that may be digitized for radio frequency (RF)

transmission. Accordingly, the signal conditioning circuit 211 places the output signal of the sensor into an appropriate form. Many different signal conditioning circuits are known to those skilled in the art. Capacitance to frequency conversion, sigma delta or other analog to digital conversion techniques are all possible conditioning circuits that may be used in a preferred embodiment.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Penn's "probe electronics" 18/58 to include a sigma-delta converter because "Sigma delta converters are preferred due to the tolerance of noisy supply voltages and manufacturing variations" (see Najafi, col. 3, ll. 46-47).

Claims 2, 6, and 7: Penn teaches wherein said interface 12, said analog-to-digital converter 18/58, and said transceiver 60 are disposed within a common matrix 12, e.g. a single integrate circuit (see fig. 15), configured for implantation within an organism.

Claims 3 and 4: Penn teaches the following (see fig. 15 and col. 9, l. 65, to col. 10, l. 67): wherein said antenna 20 receives power via RF emission from an electrical winding disposed in proximity to said antenna 20, said electrical winding configured to receive a controlled flow of electrical current from an external power source 26 to generate an electromagnetic field, wherein flow of electric current to the said electrical winding is controlled by an external signal processing system 14; and wherein the external signal processing system 14 triggers the said implantable system wirelessly, via the controlled flow of electric current to the electrical winding, to start receiving bioelectric signals from said organism through at least one implantable electrode 16 disposed within said organism.

Claim 8: Penn does not teach "wherein said interface includes a signal amplification component for amplifying said received analog bioelectric signal".

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However, Zierhofer teaches an "amplifier" 112 that amplifies the measured "input signal" 106 (see col. 17, ll. 11-27). Thus, it would be have been obvious for one of ordinary skill in the art at the time the invention was made to modify Penn's "probe electronics" 18/58 to include an amplifier in order to amplify the signal to provide a more accurate representation of the physiological parameter being monitored.

Claims 13-20: Because the subject matter of claims 13-20 directed to a method for acquiring bio-electric signals from an organism that is not distinct from the subject matter of claims 1-4 and 6-8 above directed to the implantable bioelectric signal processing system, discussed above, Penn in view of Zierhofer and Najafi teaches claims 13-20 for the same reasons as that provided for claims 1-4 and 6-8 above.

### ***Allowable Subject Matter***

4. Claim 12 was previously allowed in the Office Action, mailed 14 September 2007. The reason for allowable subject matter was provided in that Office Action.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The other patents cited in the PTO-892 teach subject matter related to the Applicant's claims. The Examiner suggests reviewing these patents before responding to the present Office Action.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAVIN NATNITHITHADHA whose telephone number is (571)272-4732. The examiner can normally be reached on Monday-Friday, 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor, II can be reached on (571) 272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles A. Marmor, II/  
Supervisory Patent Examiner  
Art Unit 3735

/N. N./  
Patent Examiner, Art Unit 3735  
05/21/2008